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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/555,042	12/04/2006	Joachim Bamberg	011235.56870US	2751

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EXAMINER

AUJLA, DHANVIR K

ART UNIT	PAPER NUMBER
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4115

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/555,042	Applicant(s) BAMBERG, JOACHIM	
	Examiner DHANVIR AUJLA	Art Unit 4115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/28/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. In response to the Preliminary Amendment filed on October 28, 2005, claims 1-8 were canceled and the newly added claims 9-25 are pending in this application.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on April 30, 2003. It is noted, however, that applicant has not filed a certified copy of the German Patent Application No. 10319495.9 application as required by 35 U.S.C. 119(b).

Drawings

3. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 9, 14, 17, 22, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krueger et al. (US Pat. No. 5,143,563) in view of Hegner et al. (US Pat. No. 5,351,938).

Regarding claim 9, Krueger et al. in view of Hegner et al. broadly discloses a method to manufacture a component or semi-finished part for a gas turbine, in particular for an aircraft engine, by casting (column 5, lines 28-40). It is noted that Krueger et al. does not specifically disclose a smelting crucible that is manufactured of boron nitride. However, Hegner et al. discloses a crucible manufactured of boron nitride (column 2, lines 5-8). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the

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references of Krueger et al. with Hegner et al. as Krueger et al. discloses that casting or forging of a super alloy may be used to manufacture an engine disk for use in an aircraft (Krueger et al.: column 1, lines 13 and 14; column 5, lines 28-40) and Hegner et al. utilizes a casting technique for alloys that prevents the alloy from reacting with the crucible (Hegner et al.: column 2, lines 38-51) which will inherently create a product with less inclusions.

Regarding claim 14, Krueger et al. broadly disclose the component or semi-finished part is manufactured of a super alloy (column 3 lines 43-47).

Regarding claim 17, Krueger et al. broadly discloses a method to manufacture a component of a gas turbine engine by casting (column 5 lines 28-40). It is noted that Krueger et al. does not specifically disclose a smelting crucible that is made of boron nitride. However, Hegner et al. discloses a crucible that is made of boron nitride (column 2 lines 5-8). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references of Krueger et al. with Hegner et al. as Krueger et al. discloses that casting or forging of a super alloy may be used to manufacture an engine disk for use in an aircraft (Krueger et al.: column 1, lines 13-14; column 5, lines 28-40) and Hegner et al. utilizes a casting technique for alloys that prevents the alloy from reacting with the crucible (Hegner et al.: column 2 lines 38-51) which will inherently create a product with less inclusions.

Regarding claim 22, Krueger et al. broadly disclose the component is manufactured of a super alloy (column 3, lines 43-47).

Regarding claim 23, Krueger et al. broadly disclose the component is an engine disk (column 3 lines 43-47).

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Regarding claim 25, Krueger et al. broadly disclose the casting includes the step of forging (Krueger column 5 lines 28-40).

6. Claims 10-12, 16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krueger et al. (US Pat. No. 5,143,563) in view of Hegner et al. (US Pat. No. 5,351,938) and further in view of Lassow et al. (US Pat No. 5,975,188).

Regarding claim 10, it is noted that the teachings of Krueger et al. and Hegner et al. do not specifically disclose the component or semi-finished part is subsequently subjected to an inspection for an undesired inclusion. However, Lassow et al. broadly discloses the component or semi-finished part is subsequently subjected to an inspection for an undesired inclusion (column 2, lines 7-10). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and Hegner et al. with Lassow et al. as any inclusions that may occur from casting techniques described in both Hegner et al. and Lassow et al. need to be identified for the inherent reason that such inclusions adversely affect mechanical properties of the material (Lassow et al.: column 1, lines 24-25 and 45-50).

Regarding claim 11, it is noted that the teachings of Krueger et al. and Hegner et al. do not specifically disclose the component or semi-finished part is examined for the undesired inclusion with an x-ray test. However, Lassow et al. broadly discloses the component or semi-finished part is examined for the undesired inclusion with an x-ray test (column 1, lines 61-66). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and Hegner et al. with Lassow

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et al. as any inclusions that may occur from casting techniques described in both Hegner et al. and Lassow et al. need to be identified for the inherent reason that such inclusions adversely affect mechanical properties of the material (Lassow et al.: column 1, lines 24-25 and 45-50).

Regarding claim 12, it is noted that the teachings of Krueger et al. and Hegner et al. do not specifically disclose the component or semi-finished part is examined for the undesired inclusion with a neutron radiography test. However, Lassow et al. broadly discloses the component or semi-finished part is examined for the undesired inclusion with a neutron radiography test (column 1, lines 61-66 and column 2, lines 18-20). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and Hegner et al. with Lassow et al. as any inclusions that may occur from casting techniques described in both Hegner et al. and Lassow et al. need to be identified for the inherent reason that such inclusions adversely affect mechanical properties of the material (Lassow et al.: column 1, lines 24-25 and 45-50).

Regarding claim 16, the teachings of Krueger et al. and Hegner et al. teach a method to manufacture a component or semi-finished part for a gas turbine of a super alloy by casting, a smelting crucible that is manufactured of boron nitride is used in casting. It is noted that the teachings of Krueger et al. and Hegner et al. do not specifically disclose inspecting the component for undesired inclusion. However, Lassow et al. broadly discloses inspecting the component for undesired inclusions (column 2, lines 7-10; it is noted that the inclusions would be boron nitride with the use of a boron nitride crucible, versus the ceramic one used in Lassow, see column 2, lines 1-4). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and

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Hegner et al. with Lassow et al. as any inclusions that may occur from casting techniques described in both Hegner et al. and Lassow et al. need to be identified for the inherent reason that such inclusions adversely affect mechanical properties of the material (Lassow et al.: column 1, lines 24-25 and 45-50).

Regarding claim 18, the teachings of Krueger et al. and Hegner et al. teach the presence of boron nitride. It is noted that the combined references of Krueger et al. and Hegner et al. do not specifically disclose inspecting the component for inclusions. However, Lassow et al. broadly discloses inspecting the component for inclusions (column 2, lines 7-10; it is noted that the inclusions would be boron nitride with the use of a boron nitride crucible, versus the ceramic one used in Lassow, see column 2, lines 1-4). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and Hegner et al. with Lassow et al. as any inclusions that may occur from casting techniques described in both Hegner et al. and Lassow et al. need to be identified for the inherent reason that such inclusions adversely affect mechanical properties of the material (Lassow et al.: column 1, lines 24-25 and 45-50).

Regarding claim 19, it is noted that the teachings of Krueger et al. and Hegner et al. do not specifically disclose the step of inspecting includes testing with an x-ray test. However, Lassow et al. broadly discloses the step of inspecting includes testing with an x-ray test (column 1, lines 61-66). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and Hegner et al. with Lassow et al. as any inclusions that may occur from casting techniques described in both Hegner et al. and Lassow et al. need to be identified for the inherent reason that such inclusions

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adversely affect mechanical properties of the material (Lassow et al.: column 1, lines 24-25 and 45-50).

Regarding claim 20, it is noted that the teachings of Krueger et al. and Hegner et al. do not specifically disclose the step of inspecting includes testing with a neutron radiography test. However, Lassow et al. broadly discloses the step of inspecting includes testing with a neutron radiography test (column 1, lines 61-66 and column 2, lines 18-20). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and Hegner et al. with Lassow et al. as any inclusions that may occur from casting techniques described in both Hegner et al. and Lassow et al. need to be identified for the inherent reason that such inclusions adversely affect mechanical properties of the material (Lassow et al.: column 1 lines 24-25 and 45-50).

7. Claims 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krueger et al. (US Pat No. 5,143,563) in view of Hegner et al. (US Pat No. 5,351,938), further in view of Lassow et al. (US Pat No. 5,975,188) and furthermore in view of Boone et al. (US Pat No. 3,595,712).

Regarding claim 13, the teachings of Krueger et al., Hegner et al. and Lassow et al. broadly disclose the inspection of the component or semi-finished part (Lassow et al.: column 2, lines 7-10). It is noted that the teachings of Krueger et al., Hegner et al., and Lassow et al. do not specifically disclose a coating process. However, Boone et al. teaches a coating process (column 1, lines 27-32). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al., Hegner et al. and

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Lassow et al. with Boone et al. as the coating process disclosed in Boone et al. is applied to super alloys disclosed in Krueger et al. for gas turbine engine applications in order be able to expose components manufactured from these super alloys to elevated temperatures (Boone et al.: column 1, lines 28-33) often seen in aircraft engines.

Regarding claim 21, the teachings of Krueger et al., Hegner et al., and Lassow et al. broadly disclose inspecting the component (Lassow et al: column 2, lines 7-10). It is noted that the combined references of Krueger et al., Hegner et al. and Lassow et al. do not specifically disclose coating the component after the step of casting. However, Boone et al. teaches coating the component after the step of casting (column 1, lines 27-32 and column 3, lines 18-20). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al., Hegner et al. and Lassow et al. with Boone et al. as the coating process disclosed in Boone et al. is applied to super alloys disclosed in Krueger et al. for gas turbine engine applications in order be able to expose components manufactured from these super alloys to elevated temperatures (Boone et al.: column 1, lines 28-33) often seen in aircraft engines.

8. Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krueger et al. (US Pat No. 5,143,563) in view of Hegner et al. (US Pat No. 5,351,938) and further in view of Hessell et al. (US Pat No. 5,897,718).

Regarding claim 15, the teachings of Krueger et al. and Hegner et al. broadly disclose the component or semi-finished part is embodied as an engine disk, which is manufactured of a super alloy by casting plus forging (Krueger et al.: column 5, lines 31-35 and 39-40). It is noted

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that the combined references of Krueger et al. and Hegner et al. do not specifically teach Udimet 720 LI. However, Hessell et al. teaches Udimet 720 LI (column 1, lines 15-30). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and Hegner et al. with Hessell et al. as the super alloy Udimet 720 LI disclosed in Hessell, is just a type of super alloy disclosed in Krueger et al.

Regarding claim 24, it is noted that the combined references of Krueger et al. and Hegner et al. do not specifically teach Udimet 720 LI. However, Hessell et al. teaches Udimet 720 LI (column 1, lines 15-30). Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the combined references of Krueger et al. and Hegner et al. with Hessell et al. as the super alloy Udimet 720 LI disclosed in Hessell, is just a type of super alloy disclosed in Krueger et al.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chang (US Pat No. 4,814,023), Krueger et al (US Pat No. 5,161,950), Glynn et al. (US Pat No. 5,197,857), and Montagnon (US Pat No. 6,004,408) refer to different super alloys and their use in aircraft engines.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DHANVIR AUJLA whose telephone number is (571)270-7842.

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The examiner can normally be reached on Monday thru Thursday, 7:30a.m til 5:00 p.m.
alternative Fridays, BT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheng Joe can be reached on (571)272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DHANVIR AUJLA/
Examiner, Art Unit 4115
1/14/2009

/Joe H Cheng/
Supervisory Patent Examiner
Art Unit 4115